NASA TECH BRIEF

Lyndon B. Johnson Space Center

Table-Lookup Algorithm for Pattern Recognition: ELLTAB [Elliptical Table]

The problem:

Conventional classification methods of remotely-sensed multispectral scanner data require a great amount of central processing unit (CPU) time.

The solution:

The computer program ELLTAB has been developed which classifies remotely sensed data approximately 30 times faster than conventional methods.

How it's done:

The program applies an advanced table-lookup approach to pattern recognition. The essence of the table-lookup approach is that at classification time a remotely sensed unit, or pixel, is assigned to a category by merely looking up its channel readings in a four-dimensional table, as opposed to making the lengthy calculations required in a maximum likelihood computation.

The table-lookup approach makes it possible to process multispectral scanner data, using a minicomputer (i.e., a low-cost, small-scale, general-purpose digital computer). Results from ELLTAB are shown to be of the same quality as that received from LARSYS III classification (NASA Tech Brief B75-10235).

Notes:

1. The ELLTAB program, which has been tested on the UNIVAC 1108 and the Varian 620F minicomputer, is written entirely in FORTRAN and operates in batch or demand mode.
2. Inquiries concerning this program should be directed to:

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